

計算機概論 (9/25 小考) 參考解答

學號：_____ 姓名：_____ 系級：_____

1. 1011100_2

轉 10 進位 = 92

轉 16 進位 = 5C

$$\begin{array}{ccccccc} 1 & 0 & 1 & 1 & 1 & 0 & 0 \\ 2^6 & 2^5 & 2^4 & 2^3 & 2^2 & 2^1 & 2^0 \end{array}$$

$$\begin{aligned} &= 2^6 + 2^4 + 2^3 + 2^2 \\ &= 64 + 16 + 8 + 4 \\ &= 92 \end{aligned}$$

2. $1C65_{16}$

轉 2 進位 = 1110001100101

轉 10 進位 = 7269

$$\textcircled{2} \quad \underline{1011100}$$

$$\Rightarrow \underline{0101} \quad \underline{1100}$$

$$= 5 \quad 12$$

$$= 5 \quad C$$

3. 3821_{10}

轉 2 進位 = 111011101101

轉 16 進位 = EED

$$\Rightarrow \underline{0101} \quad \underline{1100}$$

$$= 5 \quad 12$$

$$= 5 \quad C$$

2. $\textcircled{1}$

$$\begin{array}{ccccccc} 1 & C & 6 & 5 \\ \downarrow & \searrow & \searrow & \searrow \\ \Rightarrow & \underline{0001} & \underline{1100} & \underline{0110} & \underline{0101} \\ & \text{省略} & & & \\ \Rightarrow & 1110001100101 \end{array}$$

$\textcircled{2}$ 方法 1:

$$\begin{array}{cccc} 1 & C & 6 & 5 \\ 16^3 & 16^2 & 16^1 & 16^0 \end{array}$$

$$\begin{aligned} &= (4096 \times 1) + (256 \times 12) + (16 \times 6) + (1 \times 5) \\ &= 4096 + 3072 + 96 + 5 \\ &= 7269 \end{aligned}$$

方法 2:

續 $\textcircled{1}$

$$\begin{array}{ccccccc} 1 & 1 & 1 & 0 & 0 & 0 & 1 & 1 & 0 & 0 & 1 & 0 & 1 \\ 2^{11} & 2^{10} & 2^9 & 2^8 & 2^7 & 2^6 & 2^5 & 2^4 & 2^3 & 2^2 & 2^1 & 2^0 \end{array}$$

$$\begin{aligned} &= 2^{11} + 2^{10} + 2^9 + 2^6 + 2^5 + 2^2 + 2^0 \\ &= 7269 \end{aligned}$$

3. $\textcircled{1}$

2	3821	1
2	1910	0
2	955	1
2	477	1
2	238	0
2	119	1
2	59	1
2	29	1
2	14	0
2	7	1
2	3	1
2	1	1
	0	

$\textcircled{2}$ 續 $\textcircled{1}$

$$\begin{array}{ccc} 1110 & 1110 & 1101 \\ \Rightarrow & 14 & 14 & 13 \\ \Rightarrow & E & E & D \end{array}$$